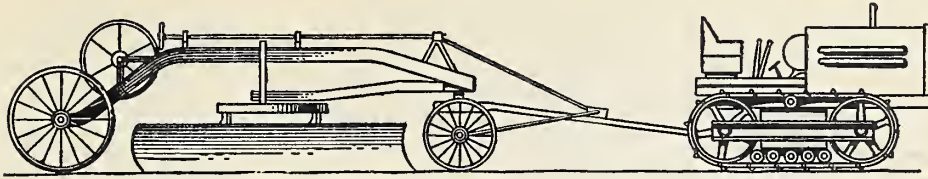


## **Historic, archived document**

Do not assume content reflects current scientific knowledge, policies, or practices.



# CONSTRUCTION



## HINTS

UNITED STATES DEPARTMENT OF AGRICULTURE, FOREST SERVICE  
WASHINGTON, D. C.

SEP 25 1937 ★

Vol. 3

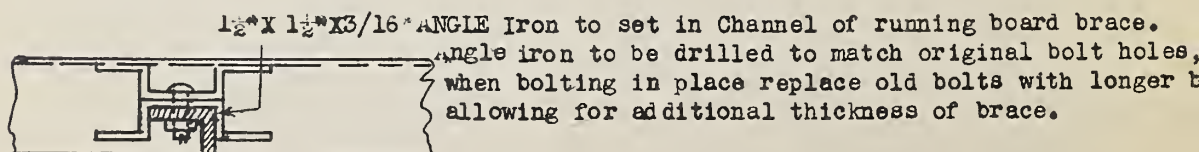
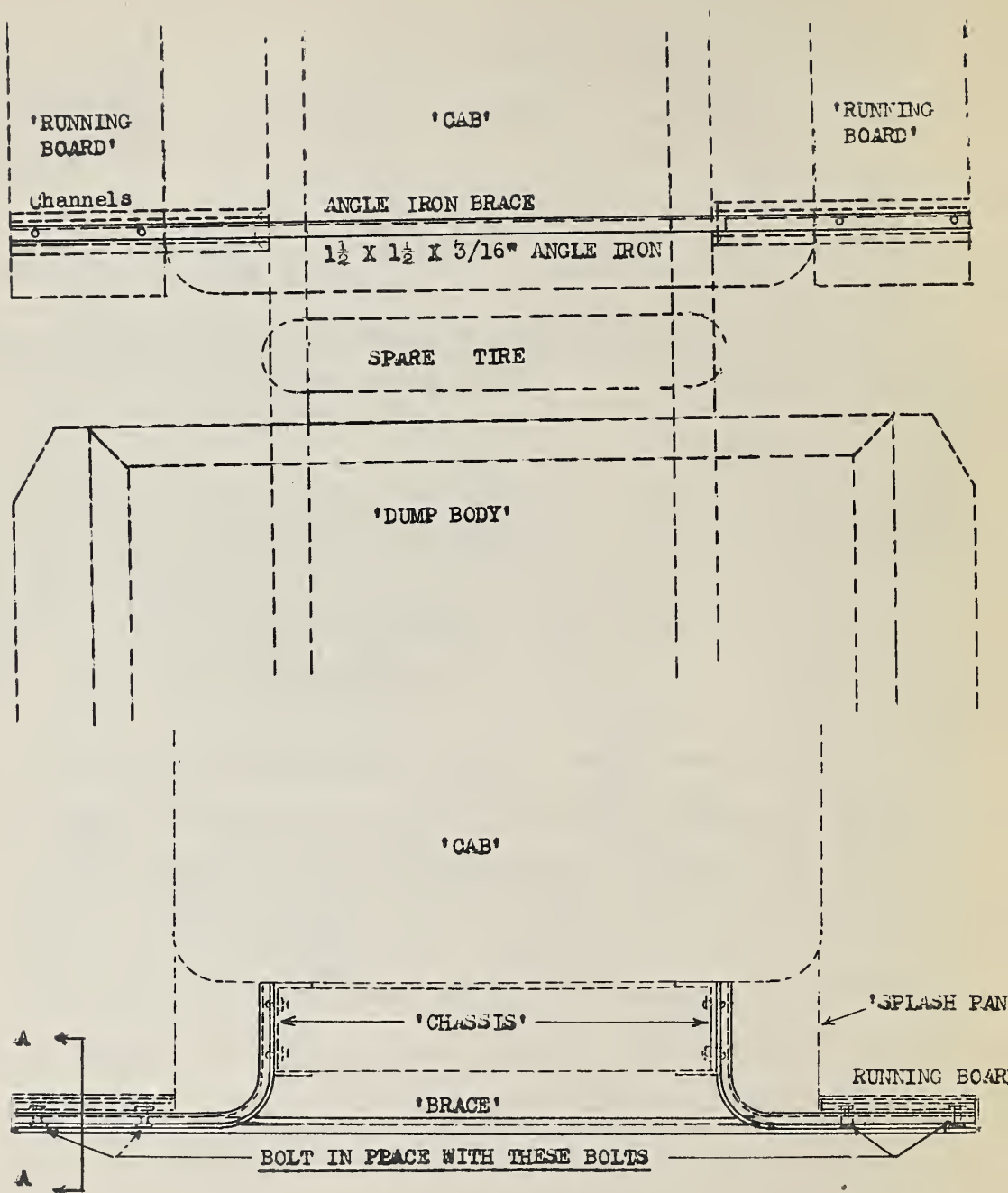
September 25, 1937.

No. 14

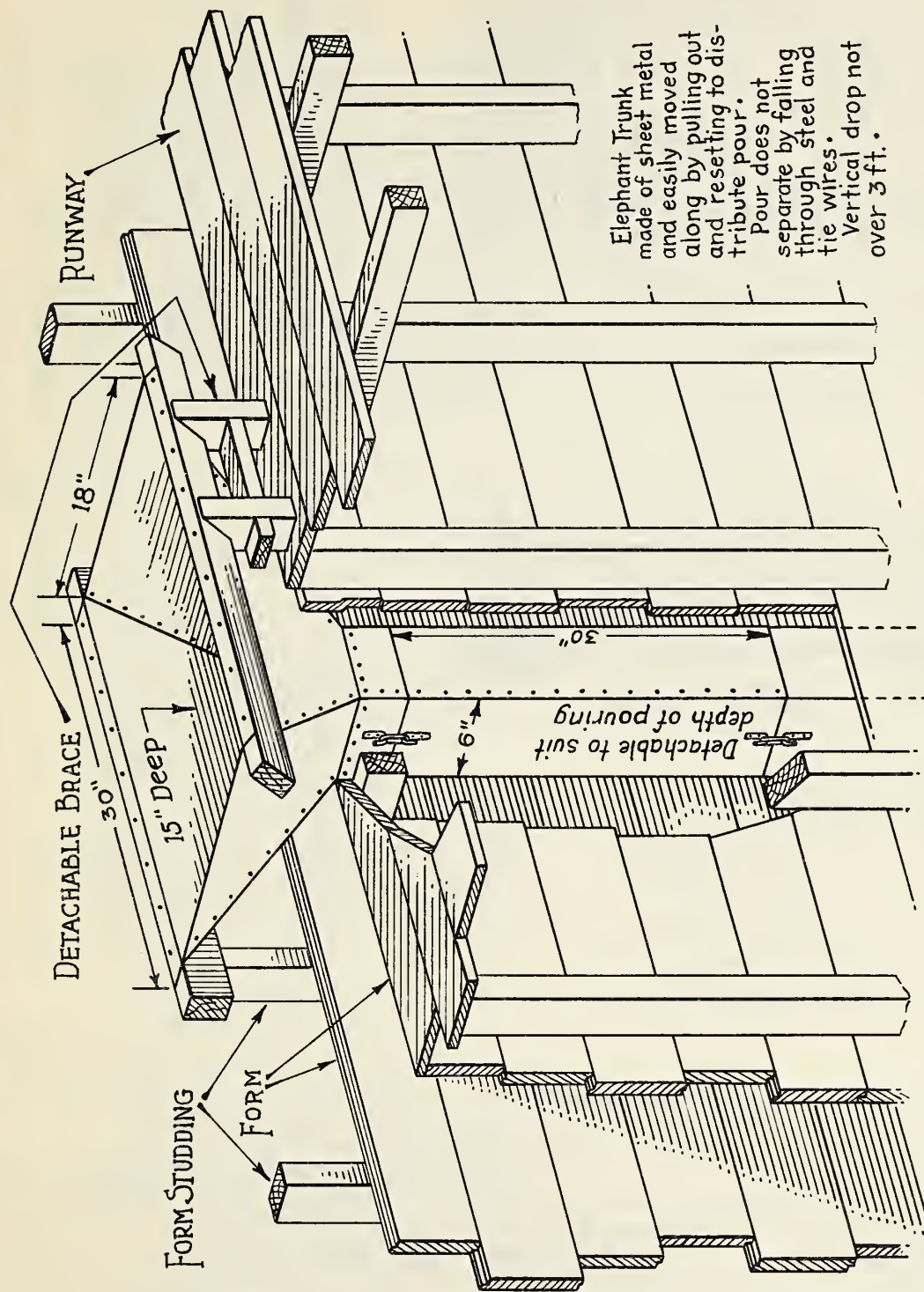
RUNNING BOARD BRACE  
FOR  
REO DUMP TRUCKS

It has been found that the running boards on these trucks tend to warp, or are forced upward. In so doing they raise the splash pans so high that the doors cannot be opened without sticking and scraping. Vibrations set up while running are being transmitted to, and are causing cracks in, the fenders and splash pans.

The brace shown on Page 2 was designed and fabricated by Harold Dow, Mechanic, Camp S-54, Butler, N. J. It is said to eliminate these difficulties and to stiffen the whole assembly materially.



SECTION 'A' 'A'

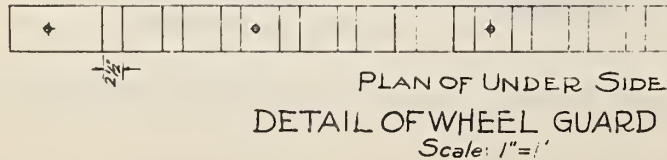
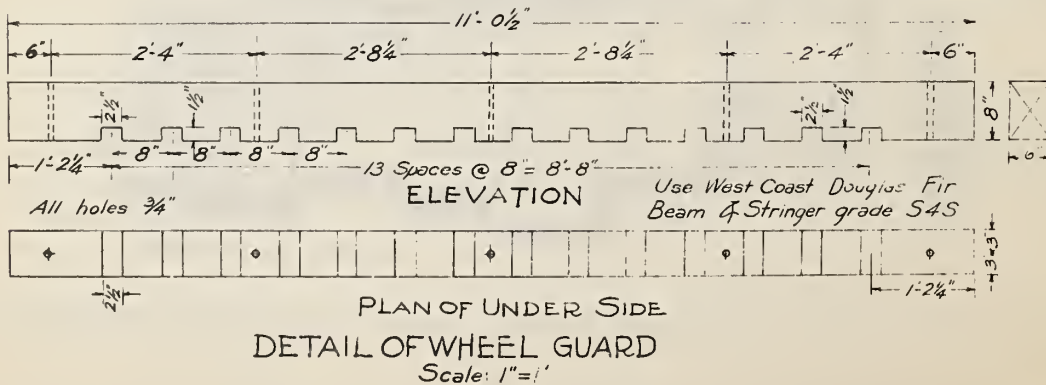
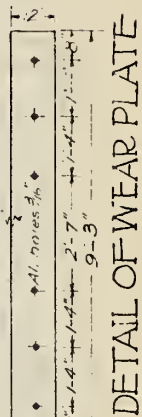
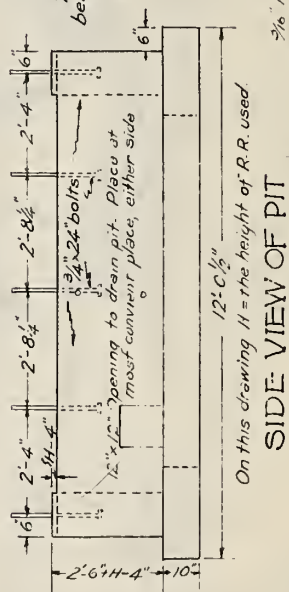
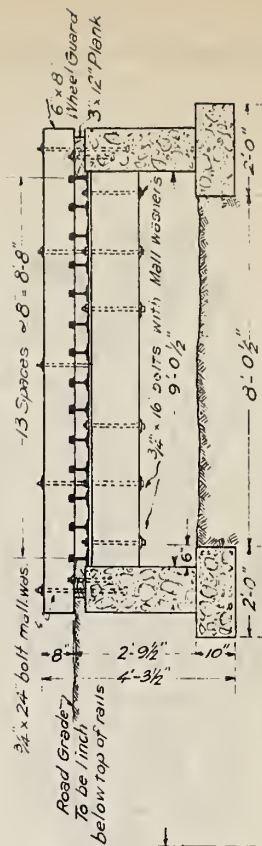
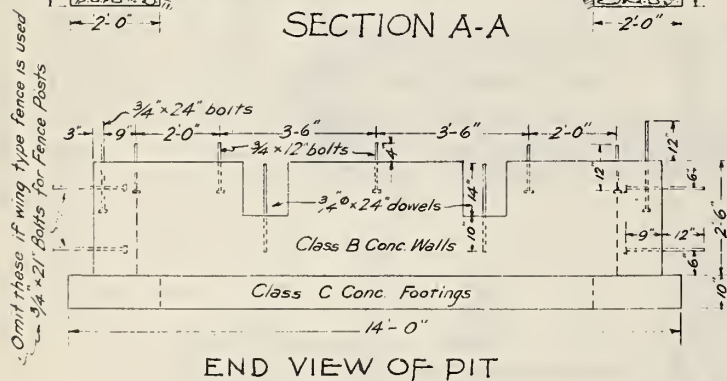
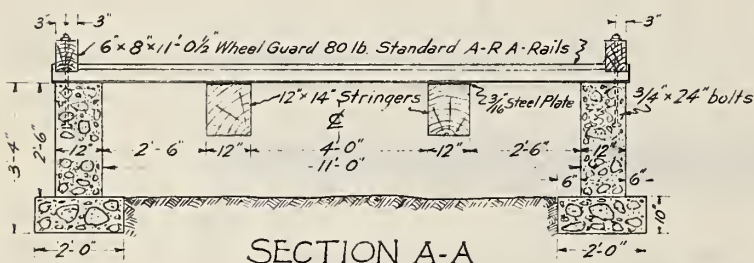
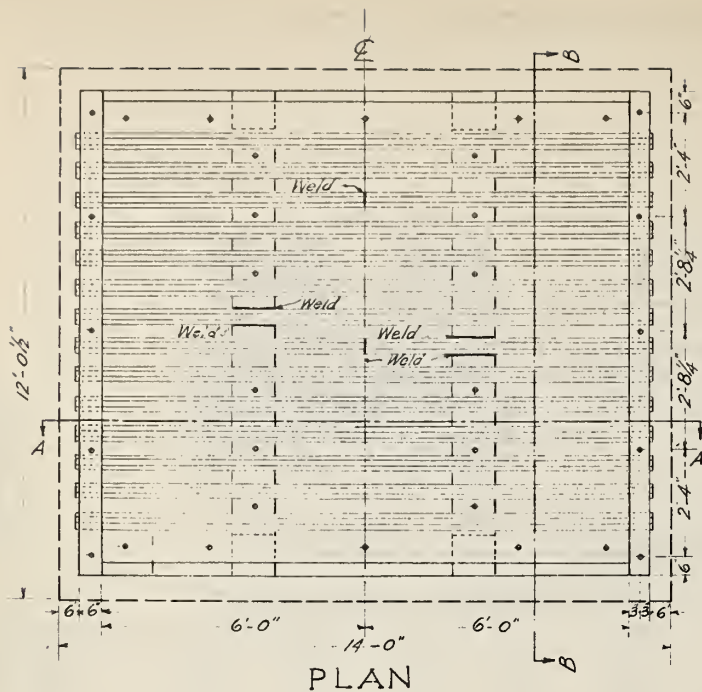


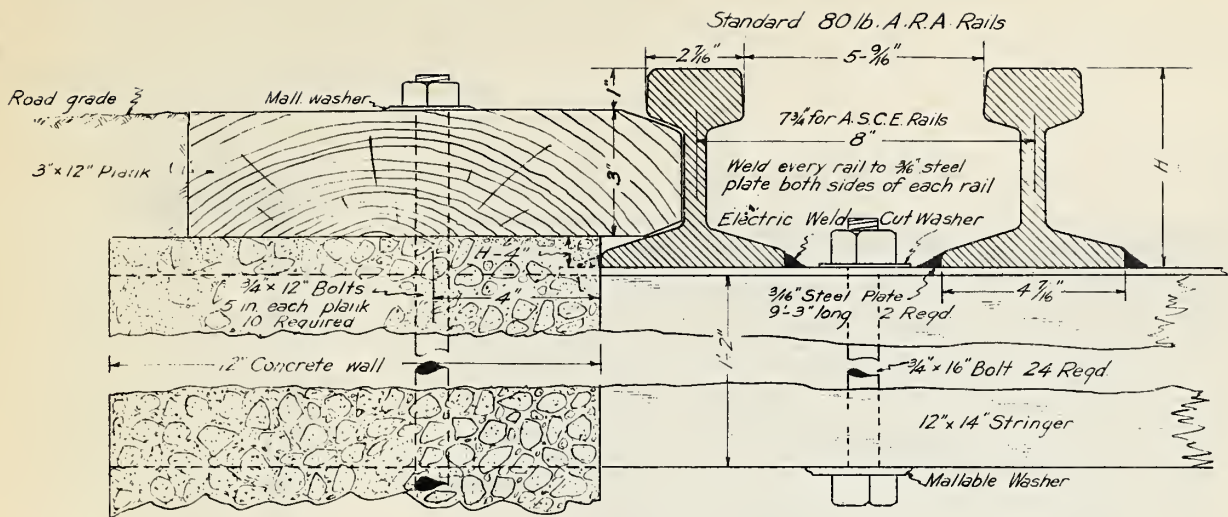
Elephant Trunk  
made of sheet metal  
and easily moved  
along by pulling out  
and resetting to dis-  
tribute pour.  
Pour does not  
separate by falling  
through steel and  
tie wires.  
Vertical drop not  
over 3 ft.

## IMPROVISED ELEPHANT TRUNK

FOR POURING CONCRETE WALLS WITH WHEEL BARROWS

CAMP F 33 C  
Manitou, Colorado





## BILL OF MATERIAL

### SINGLE TRACK ROAD WOOD STRINGER CATTLE GUARD

ITEM NO	QTY	MATERIAL	PURPOSE
1	13 Bbls	Portland Cement	Footings & walls of pit
2	5 Cu Yds.	Sand	" " " "
3	1 1/2 " "	Gravel	" " " "
		Hardware	
4	6	Standard 80 lb A.R.A. Rails	Each rail 33' long. Cut as shown
5	2	3/16 x 12 x 9-3' Mild Steel Plate	Wear plate, tops of stringers
6	10	3/4 x 12" bolts	Protection plank to Conc wall
7	10	3/4 x 24" "	Wheel guard, ends of rails
8	12	3/4 x 16" "	Wear plates to stringers
9	4	3/4 x 24" round dowels	Ends of stringers to walls
10	4	3/4 x 21" bolts	Fence posts to side walls
11	36	Malleable washers	For 3/4 bolts
12	12	Cut washers	" " "
13	4 lbs	Ed. common nails	Concrete forms
		Lumber	
14	2 pcs.	3 x 12 x 12' plank	Protection over end wall
15	2 pcs	6 x 8 x 11' S4S	Wheel guard
16	2 "	12 x 14 x 11' Rough	Stringers
17	6 "	1 x 10 x 14' Com. S2S	Concrete forms
18	12 "	1 x 10 x 12' " "	" "
19	8 "	1 x 10 x 10' " "	" "
20	4 "	1 x 10 x 8' " "	" "
21	8 "	2 x 4 x 14' S4S	" "

## PART SECTION B-B ENLARGED

TO SHOW METHOD OF WELDING RAILS AND PLANK TO PROTECT CONCRETE WALL

A.S.C.E. rails may be used but spacing for the two out side rails at both sides will be 7 1/4" instead of 8" as shown on drawing, and the first notch in each end of the wheel guard will be 1-2 1/2" from the end instead of 1-2 1/4" as shown on drawing. 80 lb A.S.C.E. Rails are 5" wide on the bottom. All rails shall be lined up and positions marked on steel plates and wheel guard fitted accurately before welding is commenced. In case further rail stability is needed, steel straps 1/2 x 2" can be welded across tops of rails between wheel tracks.

## NOTES AND SPECIFICATIONS

### Design

Concentrated load of 10,000 lbs at mid span plus 5000 lbs for impact each stringer

Max allowable timber stress, Bending 1300 lbs per sq. in.

" " " " Hor. Shear 90 lbs per sq. in.

" " " " Compression across grain 250 lbs. per sq. in.

Lumber for stringers and wheel guards to be West Coast Region Douglas Fir Select Structural Grade. Stringer, Girder and Beam class as required by West Coast Lumbermen's Standard Grading and Dressing Rules, effective July 1, 1934. Sound local Douglas Fir may be used. For concrete forms use common grade Douglass Fir S2S.

Concrete for footings to be Class C, moderate exposure, For walls Class B, moderate exposure, as given in the 1935 Truck Trail Handbook page 709.

All work such as concrete, carpentry and welding to be first class workmanship for durability and appearance.

Where rails 33 Ft. long are used cut 2 length 13'-2 1/4" from each rail, this leaves one piece 6'-7 1/2", weld 4 such pieces making 2 lengths 13'-3" long, discard other short pieces or use in some other cattle guard.

Used rails will be permitted providing they are sound and heads are not badly worn.

## U. S. DEPARTMENT OF AGRICULTURE FOREST SERVICE

REGION FOUR

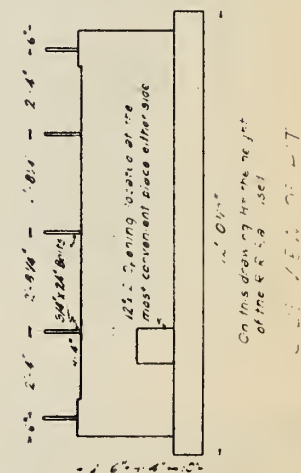
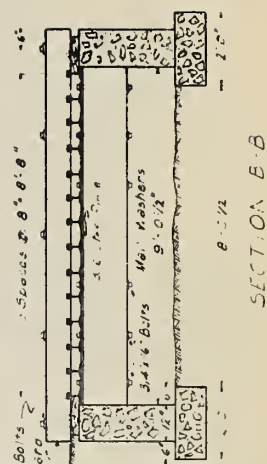
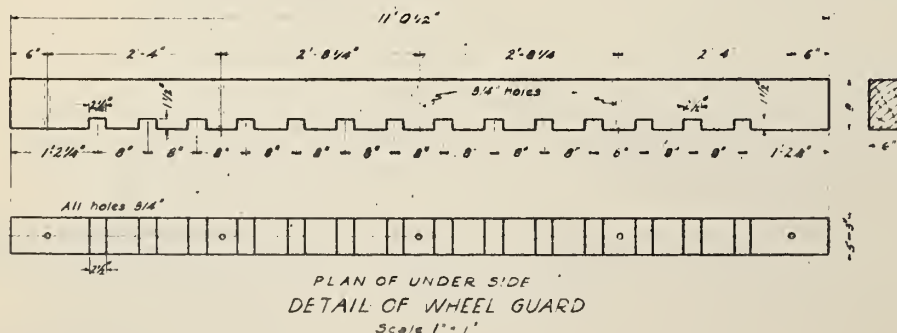
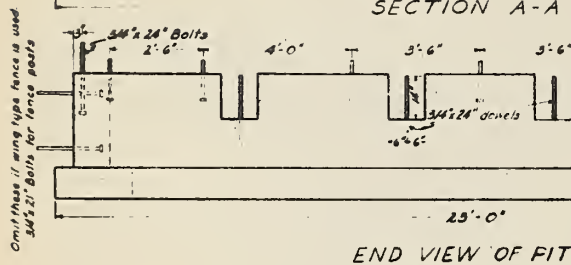
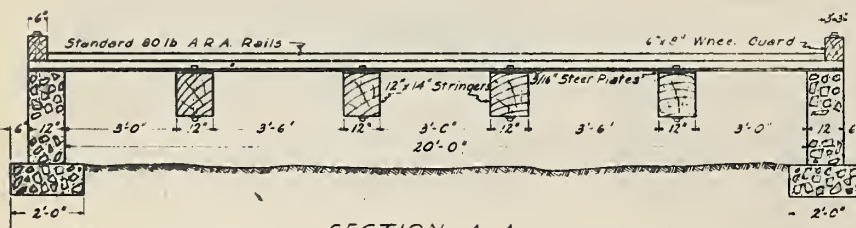
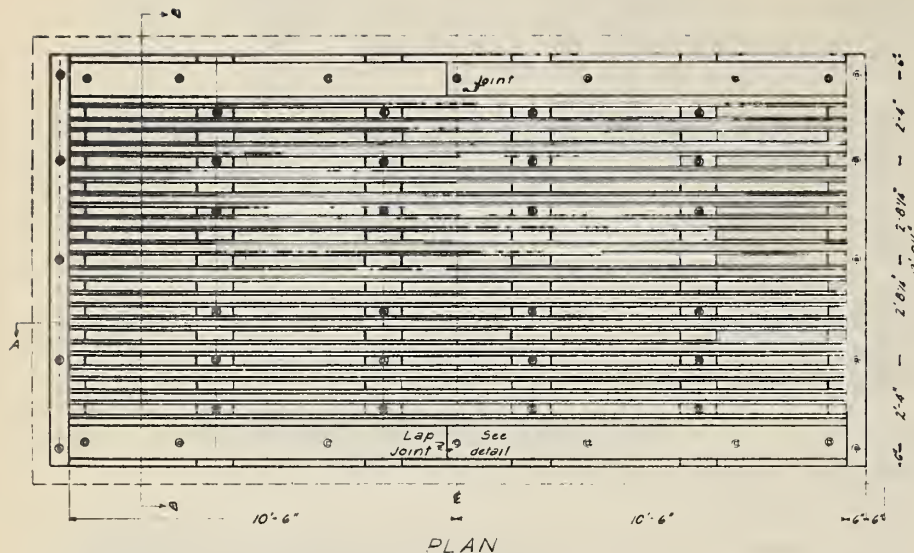
J. P. MARTIN

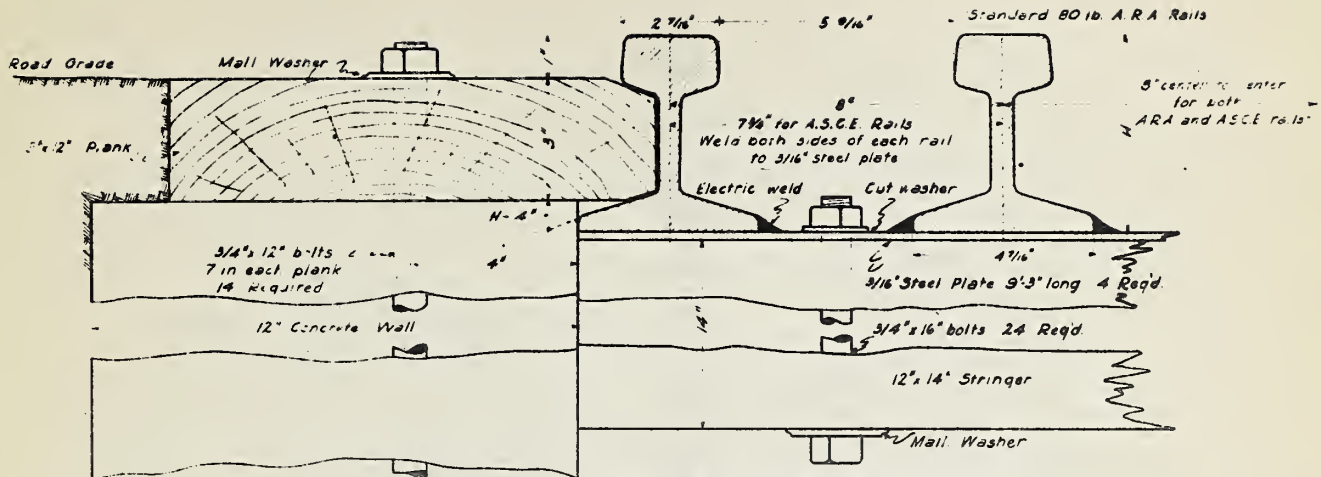
REGIONAL ENGINEER

## CATTLE GUARD WOOD STRINGER TYPE FOR SINGLE TRACK ROAD

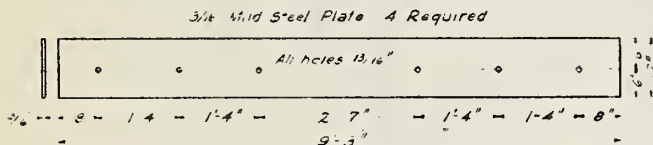
DESIGNED F.L.A. & J.P.M. DRAWN F.L.A.  
SCALE 1/2" = 1 FT. EXCEPT AS SHOWN  
APPROVED S. G. H. DATE 7-1-34

TRACED F.L.A.  
CHECKED M.W.B. & F.L.A.  
DATE 7-1-34





PART SECTION B-B ENLARGED  
TO SHOW METHOD OF WELDING RAILS  
AND PLANK TO PROTECT CONCRETE WALL  
Scale 1/2 Actual Size



DETAIL OF WEAR PLATE  
Scale 3/4" = 1'

## BILL OF MATERIAL

### DOUBLE TRACK ROAD-WOOD STRINGER CATTLE GUARD

ITEM NO.	N° Pcs.	MATERIAL	PURPOSE
1	14	Bbls Portland Cement	Footings & Walls of pit
2	75	4x8 Snds	"
3	11	2x12 Planks	"
4	14	Standard 80 lb. A.R.A. Rails 22 ft long	"
5	4	3/16 x 12 x 9'3" Mild Steel Plates	Wear plate, top of stringers
6	7	3/4 x 12' Ribs	Protection plank to conc wall
7	10	3/4 x 12' "	Wheel guard, ends of rails
8	24	3/4 x 16' "	Wear plates to stringers
9	8	3/4 x 24' round dowels	Ends of stringers to walls
10	4	3/4 x 21' Bolts	Fence posts to side walls
11	52	1/4 inchable Washers	For 3/4" bolts
12	24	Cut Washers	"
13	6 lbs	6d Common nails	Concrete forms
14	4	Lumber	"
15	2	3" x 12" x 12' Plank	Protection over end walls
16	2	6" x 9" x 11' S4S	Wheel guards
17	4	12" x 14" x 11' Rough	Stringers
18	14	1" x 10" x 10' Common S2S	Concrete forms
19	18	1" x 10" x 12' "	"
20	9	1" x 4" x 10' S4S	"

### NOTES AND SPECIFICATIONS

See 701.  
Concrete floor of 10,000 lbs. at mid-span plus 5000 lbs. for impact each stringer.

Maximum allowable timber stress - Bending 1300 lbs per sq inch.  
Hor Shear 90 lbs

Compression across grain 2500 lbs.  
Lumber for stringers and wheel guards to be West Coast Region Douglas fir select structural grade, Stringer, Girders, and Beam Class, as required by West Coast Lumbermen's Standard Grading and Dressing Rules, effective July 1, 1934, although sound local fir may be used. For concrete forms use common grade Douglas Fir S2S.

Concrete for footings to be Class C, moderate exposure. For walls, Class B, moderate exposure, as given in the 1935 Truck Trail Handbook, page 709.

### CONTINUED

All work such as concrete, carpentry, and welding to be first class workmanship, for durability and appearance.

When rails 33 ft long are used, cut one length 22 ft long from each rail. This leaves one piece 11 ft long. Weld 2 such pieces to make one 22 ft in length. This procedure will require 10 rails 33 ft long and may be cheaper than requiring cuts to be made in the shop.

Used rails will be permitted provided that they are sound and the heads are not badly worn. A.S.C.E. rails may be used, but the spacing for the two end rails at both ends will be 7 1/4" instead of 8" and the first notch in each end of the wheel guard will be 1'-2 1/2" from the end instead of 1'-2 1/4" as shown on the drawing.

All rails shall be lined up and positions marked on steel plates and wheel guards fitted accurately before welding is commenced.

In case further stability is needed, steel straps 1/2" x 2" can be welded across tops of rails between wheel tracks.

Type of fence, optional. See drawings of fences.

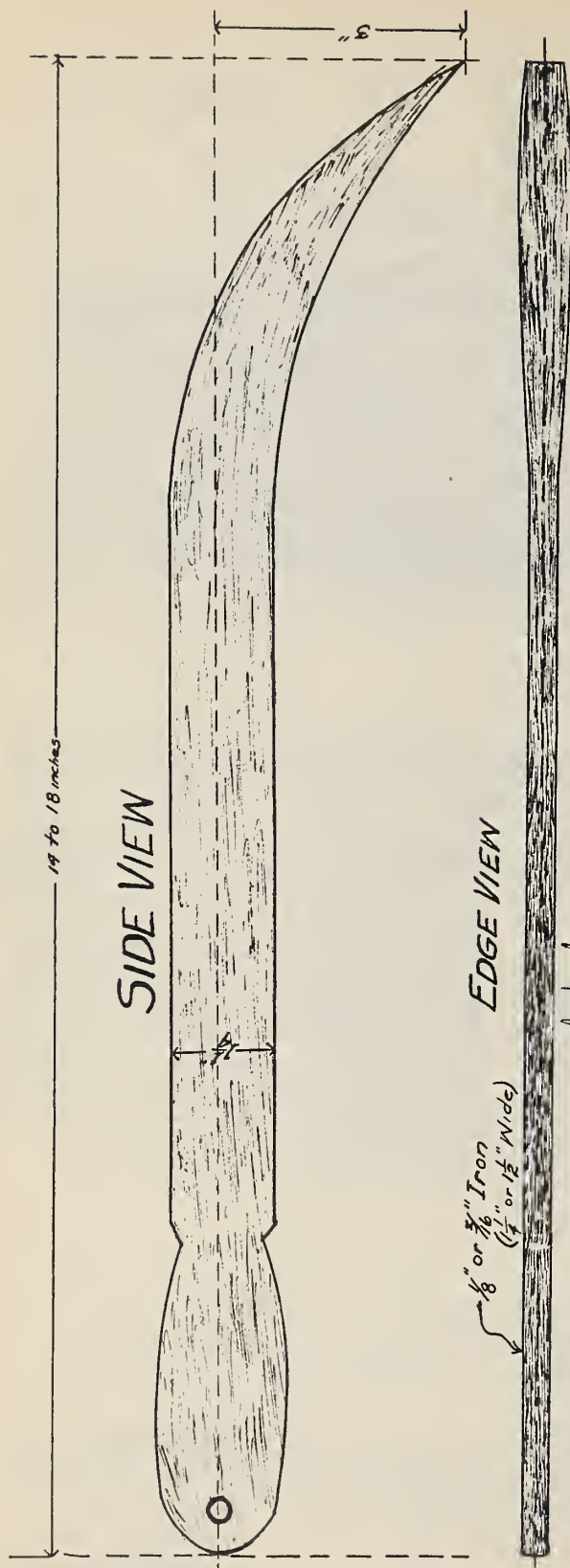
U.S. DEPARTMENT OF AGRICULTURE  
FOREST SERVICE

RE OF FOUR J. F. MARTIN

CATTLE GUARD  
WOOD STRINGER TYPE  
FOR  
DOUBLE TRACK ROAD

FLA. DEP. OF AGRICULTURE  
STATE ENGINEER  
J. F. MARTIN

E.A.T.  
E.A.T.  
J. F. MARTIN



# TOOL FOR TWISTING STUBBING WIRE ON

Telephone Construction Work

Submitted By *Merlin R. Stock, F.R.*  
*Gallatin Nat'l Forest*

